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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,888	09/05/2003	Takayuki Araki	Q77315	6640

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
HU, HENRY S	

ART UNIT	PAPER NUMBER
1713	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/654,888	ARAKI ET AL.	
	Examiner	Art Unit	
	Henry S. Hu	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Election of November 30, 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29-55* is/are pending in the application.

4a) Of the above claim(s) *29-44 and 48* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *45-47 and 49-55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *29-55* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4 pages*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. It is noted that Applicants' **Election** along with **Amendment** filed on November 30, 2005 was received. Original Claims 1-28 were all cancelled, while new Claims 29-55 were added. As pointed out by the Applicants, Claims 29-30, 33-46 and 49-55 would be reading on the elected Species (6): **a = 1-3; b = 0, c = 1.** The Applicants have elected **without traverse on Claims 45-55** (fluorine-containing polymer) **along with Species (6) for a = 1-3; b = 0, c = 1 (Claims 45-47 and 49-55 are thereby elected).** Therefore, **Claims 29-55 are now pending** with two independent claims (Claim 29 and Claim 45), while Claims 29-44 and 48 are withdrawn from consideration. An action follows.

DETAILED ACTION

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. **Claims 45-47 are** provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over **Claims 8-10** of copending Application No. **10/654,971 to Araki et al.** (**USPG-PUB 2004/0047060** with priority date 3-8-2001 and the same assignee).

This is a provisional obviousness-type double patenting rejection since the conflicting claims have not yet been patented. Although the conflicting claims are not identical, they are not patentably distinct from each other. The subject matter claimed in the instant application is obviously disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:

Parent Claim 29 of present application relates to a mixture of (A) a rare earth metal ion and (B) a fluorine-containing copolymer having functional group; while fluorinated copolymers of **Claims 45-47 relate to copolymers used in the component (B) of Claims 29-31**. It is noted that Species (6) for a = 1-3; b = 0, c = 1 has been elected by the Applicants. It is also noted that open language of "comprising" is used in parent Claim 29.

Parent Claim 1 of copending Application No. **10/654,971 to Araki et al.** relates to a fluorine-containing resin composition comprising (I) a fluorine-containing prepolymer and (II) a compound containing a rare earth metal ion and/or a rare earth metal element, wherein (1) the fluorine-containing prepolymer (I) is a non-crystalline polymer having a fluorine content of not less than 25 % by weight and (2) the fluorine-containing prepolymer (I) has **a cure site** in a side chain of the polymer and/or at an end of a trunk chain of the polymer.

In view of Species (6) for a = 1-3; b = 0, c = 1 being elected, the fluorine-containing polymer described in dependent **Claim 8** has a structural unit from $CX^1X^2=CX^3-(CX^4X^5)_a-$

$(C=O)_b$-$(O)_c$-Rf wherein the factors of X^1 and X^2 can be the same or different from H or F; X^3 is H, F, CH_3 or CF_3; X^4 and X^5 can be the same or different from H, F or CF_3; Rf can be organic group (Y)-containing alkylene or alkylene ether. **Claims 9 and 10** are dependent from Claim 8 and within the scope of a = 1-3; b = 0, c = 1.

In a close examination, "971" is including a cure site on the prepolymer component (II) which "888" is silent on parent Claim 45. In a close examination, "888" has already disclosed that a cure site may be present in the copolymer (B) in a side chain of a polymer and/or at an end of a trunk chain of the polymer; the cure site may be contained in the Rf group of (B) component (see page 57, lines 3-20). By adding a cure site, a crosslinkable product may be obtained (page 58, line 21). Therefore, both applicants are not patentably distinct and an **ODP rejection** is applied.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. *The limitation of parent* ***Claim 45*** *in present invention relates to* ***copolymers used in the component (I) of Claims 29-31, wherein patent Claim 29 relates to a fluorine-containing resin composition comprising (I) a fluorine-containing copolymer*** *having functional group, and* ***(II) a rare earth metal ion****, wherein (1) the fluorine-containing copolymer (I) is comprising M and A repeating units as specified as below.*

The fluorine-containing copolymer described in ***Claim 45*** *has a "M" structural unit from* $CX^1X^2=CX^3\text{-}(CX^4X^5)_a\text{-}(C=O)_b\text{-}(O)_c\text{-}Rf$ *wherein the factors of* X^1 *and* X^2 *can be the same or different from H or F;* X^3 *is H, F,* CH_3 *or* CF_3*;* X^4 *and* X^5 *can be the same or different from H, F or* CF_3*;* ***Rf can be organic group (Y)-containing alkylene or alkylene ether****; and* ***a is integer of 0-3, while b and c can be 0 or 1****. Claims 45-47 and 49-55 are pending now since Species (6) for a = 1-3; b = 0, c = 1 is elected by the Applicants. See other limitations of dependent* ***Claims 46-47 and 49-55****.*

6. Claims 45-47 and 49-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fryd et al. (US 6,869,693 B2 with **an effective US filing date of October 10, 2000** or its equivalent EP WO 02/31896 A2) in view of Kolke et al. (EP 1,072,905 A1).

Regarding the limitation of parent **Claim 45** and within the elected scope of a = 1-3; b = 0, c = 1, **Fryd** in each of US and WO patents has disclosed the preparation of polymers having attached luminescent metal complexes, wherein the complex is made from coordination of functional groups including the claimed **enolate or beta-dicarbonyl ligand**, see column 9, line 33 – column 10, line 7; column 3, line 11-22) to metal ions (abstract, line 1-10; column 12, line 17-63; see functionalized polymers at column 4, line 11-27). According to Fryd's disclosure, **fluoropolymers** and "**many**" other types of polymers (or copolymers) including **polyvinyl ethers** or polyacrylates are used to carry functional groups (column 4, line 11-27).

7. In a close examination, **Fryd is silent about polymer or copolymer using the specific and claimed "M" ether-type structure of formula (2). Kolke** teaches that in the course of making light transmitting device, a composition made from mixing a **non-crystalline "per"fluoro-polymer** with a **fluorinated metal-betadicarbonyl chelate compound** may be used (see Tables 1-2 on pages 5-6; page 4, line 2-46), wherein non-crystalline **perfluoropolymer contains no C-H bond** at all (see perfluoropolymers in formula 1-3 on page 3, particularly see formula 1; page 3, line 15-57). By doing so, **a minimum transmission loss when using a near-infrared wavelength** can be thereby obtained (page 3, line 18-19). Additionally, Kolke teaches that **it is preferable to use fluoropolymer whenever fluorinated metal chelate**

compound is used so as to get better solubility and/or compatibility (page 4, line 44-48). Some of Kolke's many polymers would fall within the scope of a = 1-3; b = 0, c = 1 and the claimed ether-type structure of Claim 45.

8. In light of the fact that both references are preparing similar fluoropolymer/metal chelate compositions, one having ordinary skill in the art would therefore have found it obvious to modify Fryd's polymeric composition by using an ether-type **perfluoropolymer carrying a fluorinated metal chelate as a moiety inside the polymer's pendant group** as taught by Kolke. By this modification, one would expect to obtain a better and more diversified fluorinated copolymer with improved optical transparent properties to be excellent in reducing transmission loss when using a near infrared light and with better solubility and/or compatibility.

9. Regarding **Claims 46 and 47**, some of Kolk's polymers would be fallen within the scope of a = 1-3; **b = 0**, c = 1 and the claimed ether-type structure of Claim 45.

Regarding **Claims 49-55**, all "Rf" groups in formula (2) of its parent Claim 45 are containing carbonyl group, which is a required element for metal-dicarbonyl chlating purpose. Although Fryd/Kolke, in combination or alone, does not disclose exactly the same structure on claimed Rf, the instant Application does not show **criticality along with unexpected result** why only such a claimed Rf structure can be used.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to a fluorine-containing copolymer described in **Claim 45** has a "M" structural unit from $CX^1X^2=CX^3-(CX^4X^5)_a-(C=O)_b-(O)_c-Rf$ in addition to "A"-structural unit: **US Patent No. 6,176,895 B1 to DeSimone** et al. only discloses the use of ligand-containing polymer to extract metal ions in liquid or supercritical carbon dioxide, wherein the ligand bound to the polymer is at a plurality of locations along the chain length (abstract, line 1-15; Figure 1; column 2, line 25-65). **Ligand may be in various types including include beta-diketone**, phosphate, phosphonate or others (column 4, line 7-41). **Some fluorinated polymers may be used** (column 4, line 1-6). However, such fluoropolymers are **only related to acrylate type (not** within the scope of a = 1-3; b = 0, c = 1) according to the disclosure from the two US patents cited therein.

EP Patent No. 622,878 A1 to Sharma et al. only discloses a composition by dissolving a rare earth metal complex into a polymeric matrix (abstract, line 1-3). The complex compound is made from coordination of **beta-dicarbonyl** functional groups to erbium metal ion (page 3, line 6-19). Sharma is silent about two things: (A) polymer or copolymer using the specific and claimed "M" ether-type structure of formula (2), and (B) using a fluorinated beta-dicarbonyl ligand.

US Patent No. 6,292,292 B1 to Garito et al. only discloses the preparation of polymers having attached optical amplifying erbium metal complex, wherein the complex is made from coordination of **phosphinate** functional groups to erbium metal ion (abstract, line 1-20; Figure 1; column 2, line 40-56). No metal-dicarbonyl chelating is used at all.

11. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu whose telephone number is (571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Henry S. Hu

Patent Examiner, Art Unit 1713, USPTO

January 9, 2006

DAVID W. WU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700